

The Future of Technology



Polyurethane Manufacturers
Association

November 8, 1999

Outline



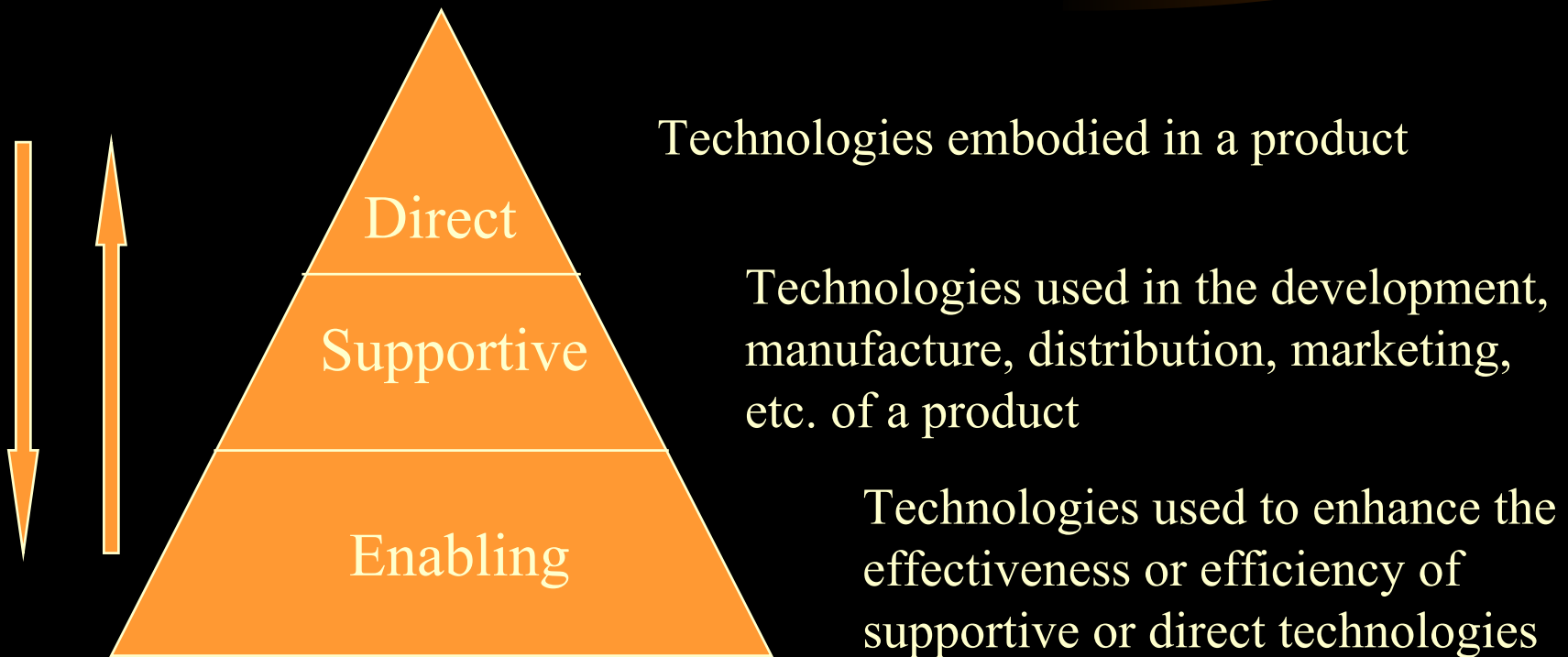
- Technology
- Key Technologies for the Future
- Technology Management
- Guidelines for Thriving

Technology

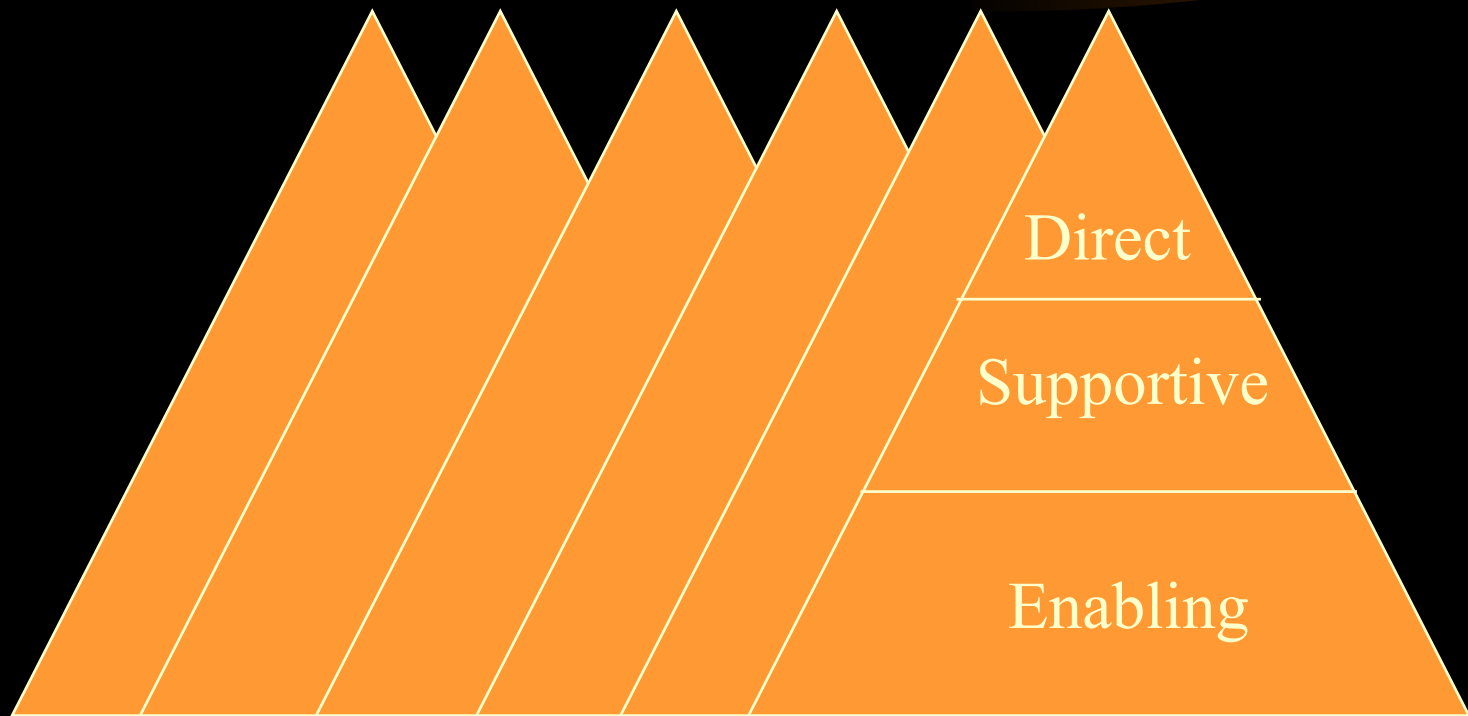


- Technology is the practical application of knowledge.
- Types
 - Direct
 - Supportive
 - Enabling

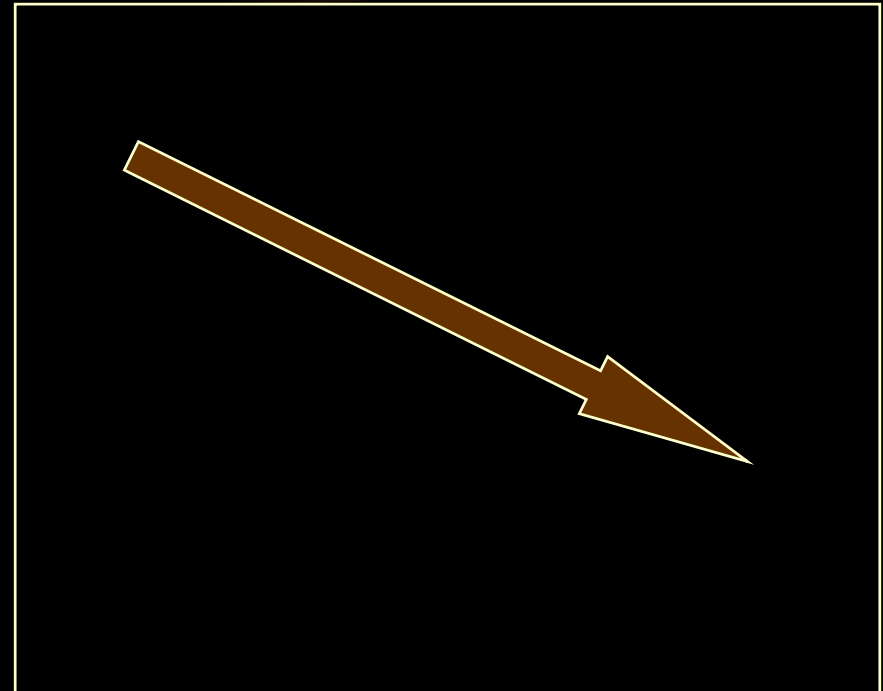
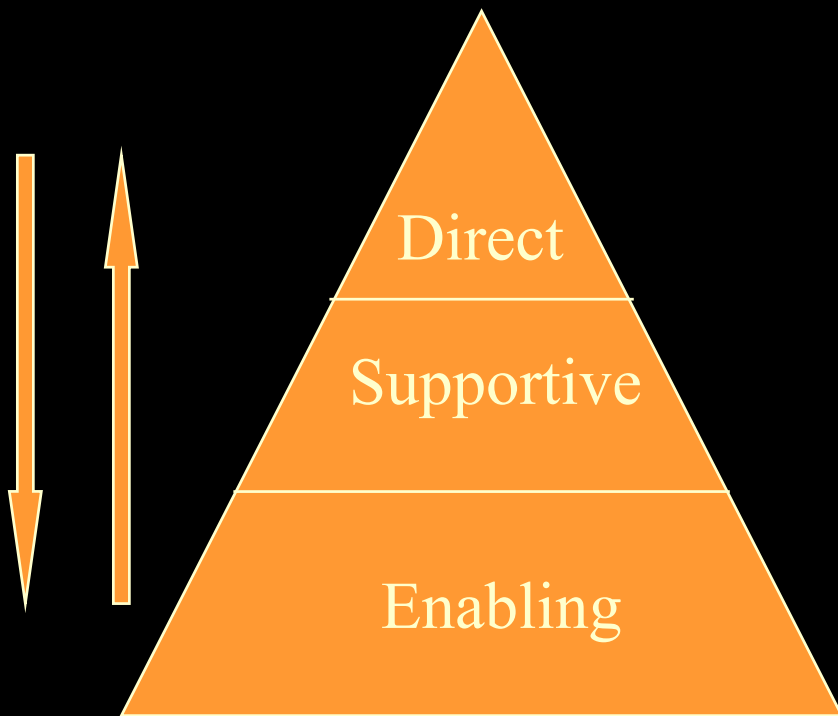
Types of Technology



Product Technology Clusters



Economic Driving Force



50's 60's 70's 80's 90's 00's

Information Technologies

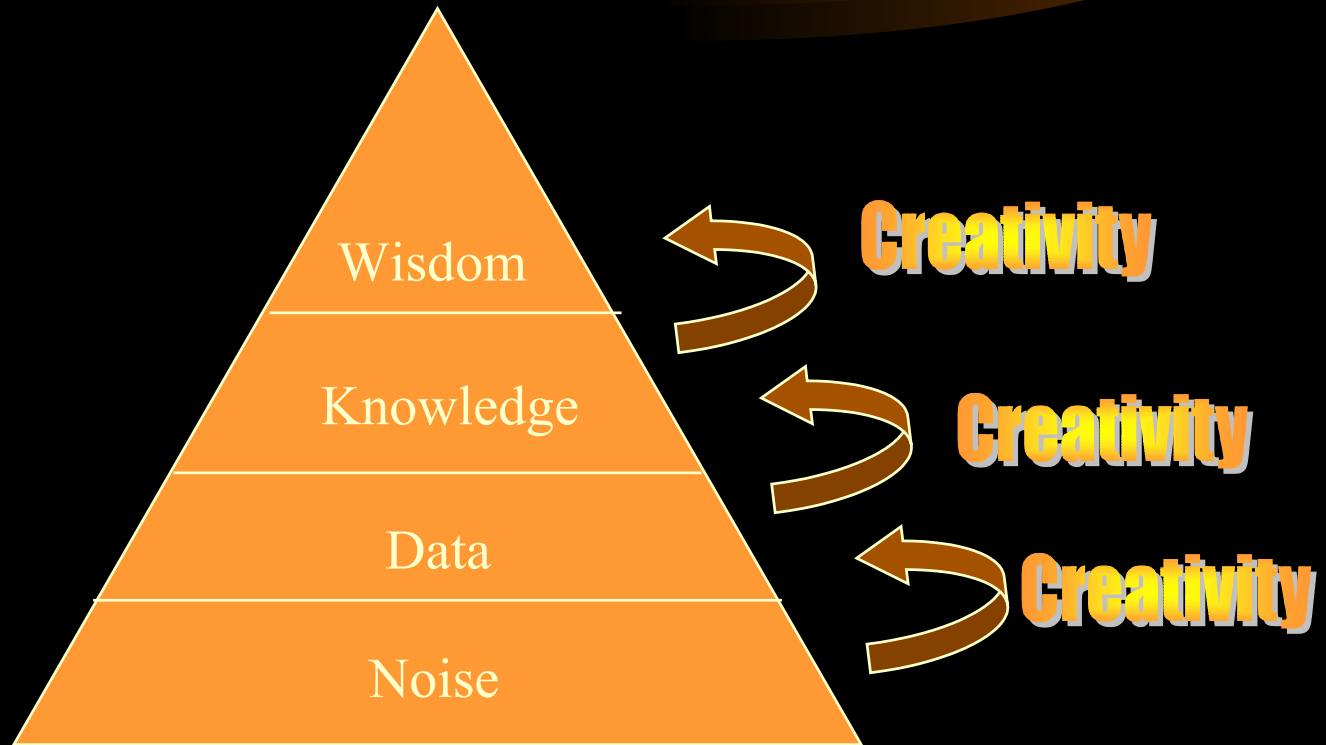


Characteristics of the New Economy



- Creativity
- Informatization
- Knowledge management
- Continuous, integrated education
- Innovation
- Digitization
- Mass customization
- Virtualization
- Interactive integration
- Disintermediation
- Immediacy
- Glocalization

Information and Creativity



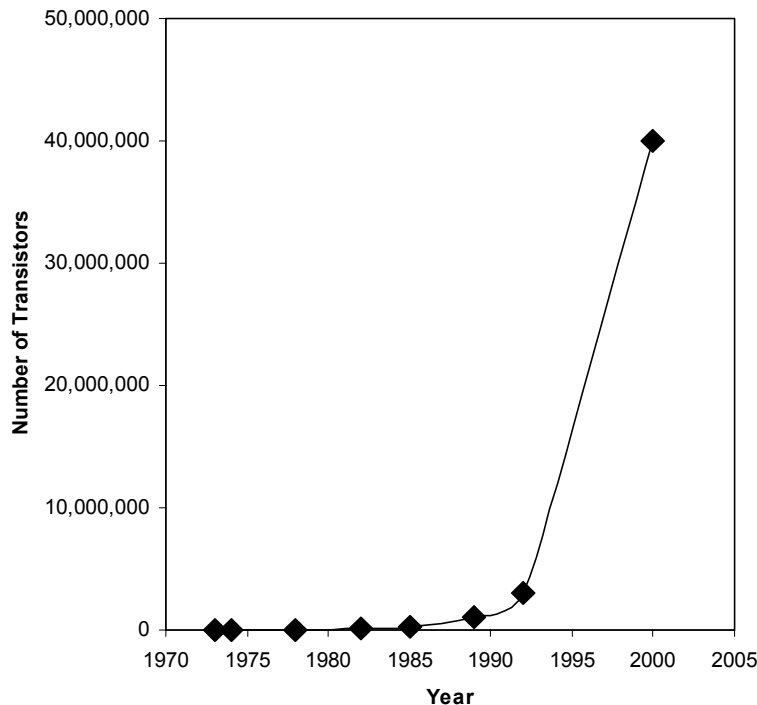
Key Information Technologies



- Computer
- Internet
- Telecommunications
- Image
- Software systems

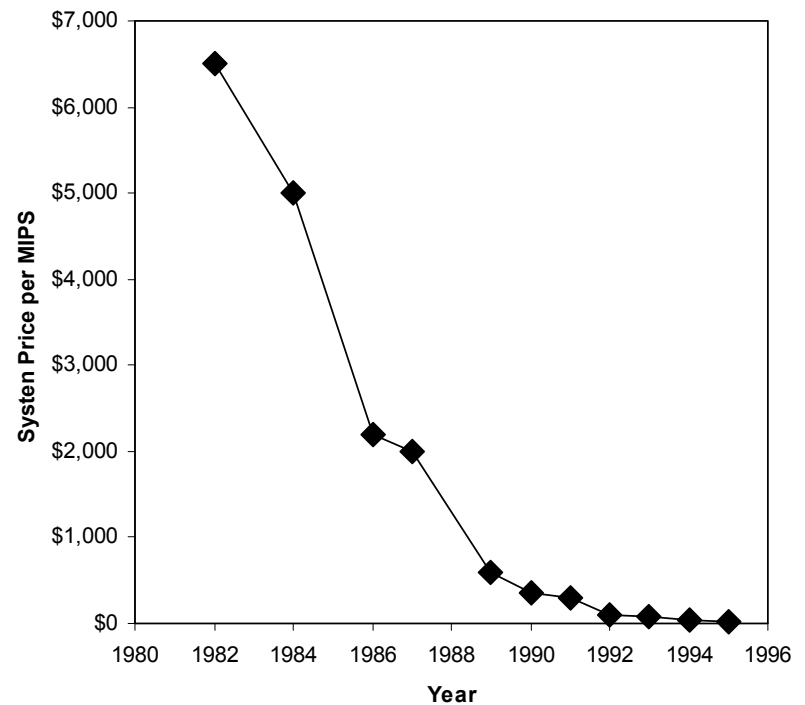
Computer Technology

Integrated Circuit Progress



Source: *The Road Ahead*, Bill Gates

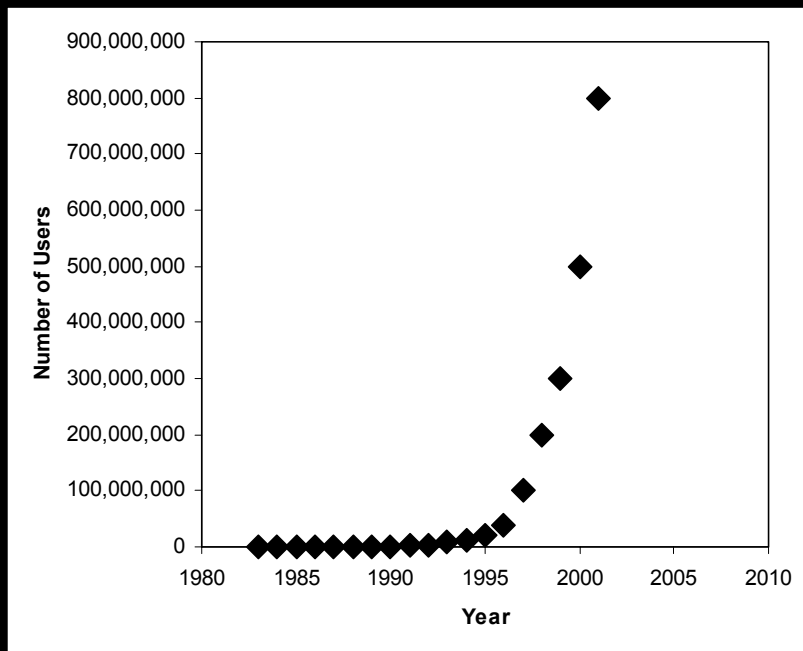
Computer Progress



Source: *Only the Paranoid Survive*, Andrew S. Grove

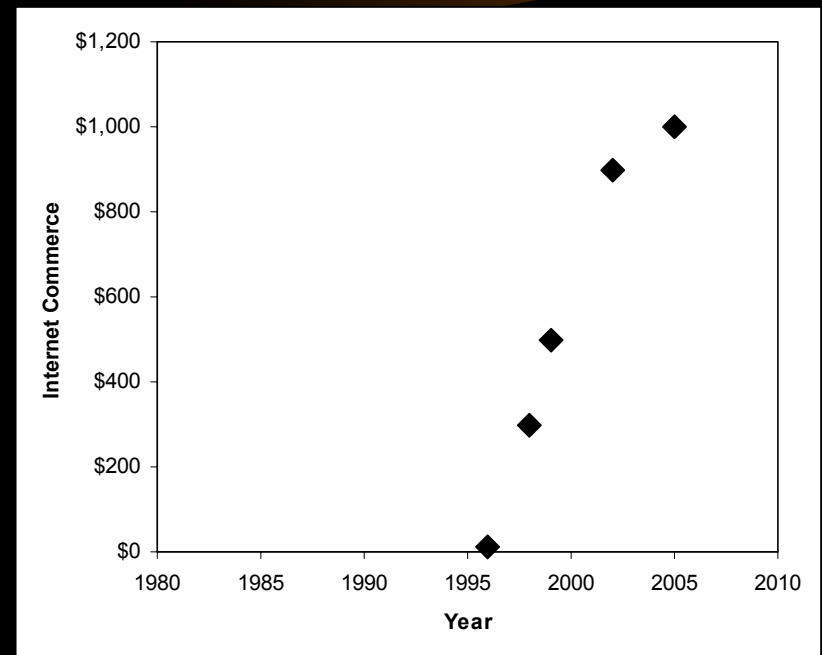
Internet Technology

Internet Users (estimates)



Source: *Digital Economy*, Dan Tapscott & USDOC

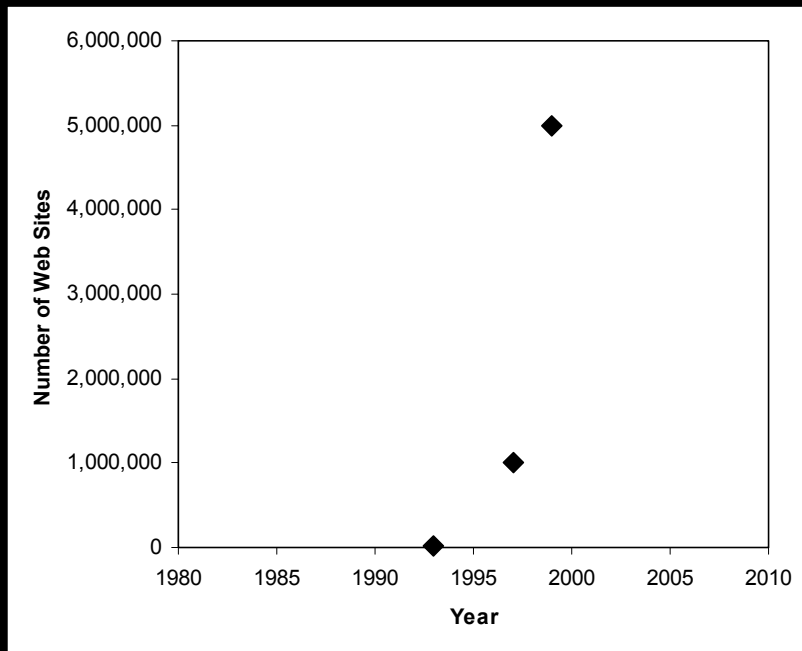
Internet Commerce (\$B)



Source: Unisys, UT, IMG and Computer World

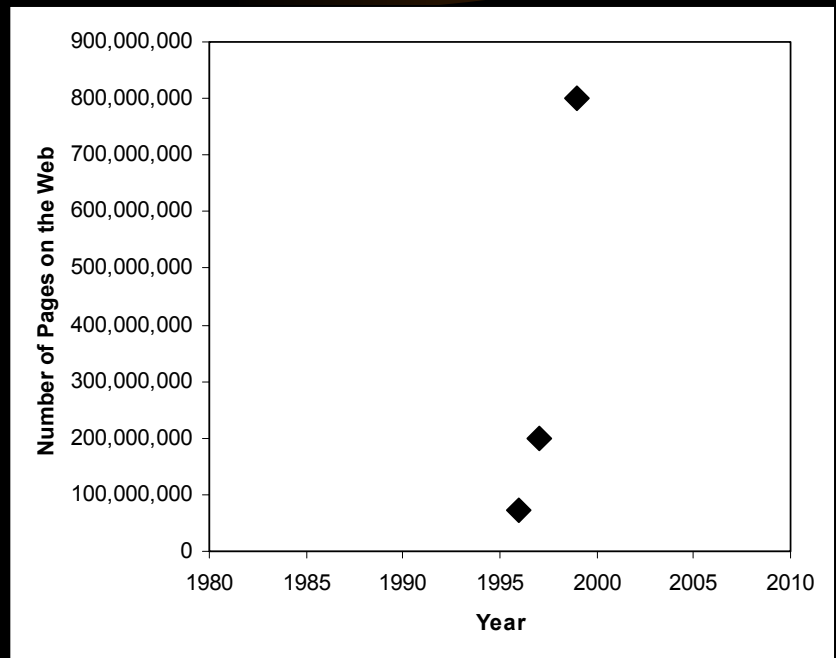
Internet Technology

Number of Web Sites



Source: Computer World

Number of Web Pages



Source: NEC & Computer World

Telecommunications Technology

<i>Name</i>	<i>Bits per Second (BPS)</i>	<i>Relative Bandwidth</i>
<i>POTS</i>	64,000	1
<i>ISDN</i>	128,000	2
<i>T1</i>	1,544,000	24
<i>T3</i>	43,323,000	677
<i>OC3</i>	129,696,000	2,026
<i>OC48</i>	2,075,136,000	32,424

Source: *The Digital Economy*, Don Tapscott

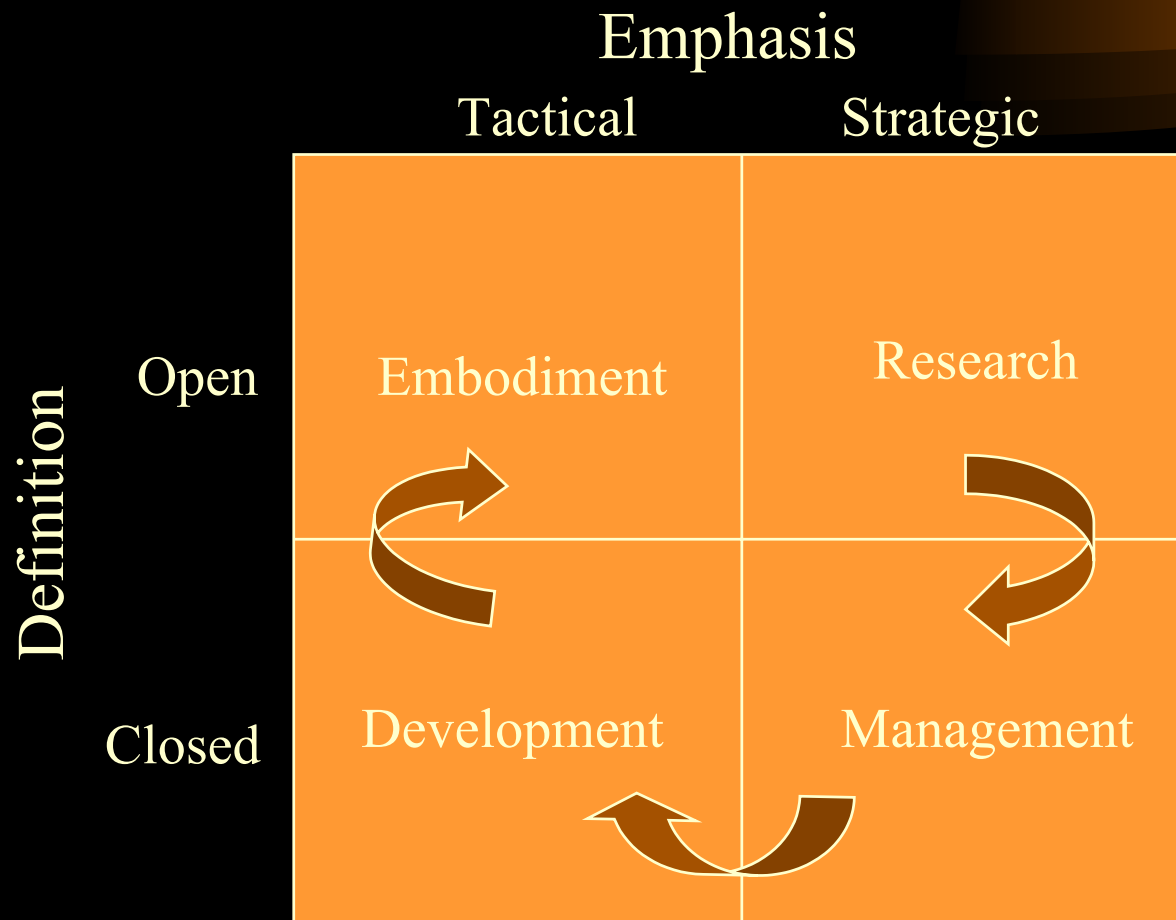
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Technology Actualization



- Research
- Management
- Development
- Embodiment

Technology Actualization Process



Tasks



- Identify and understand the driving forces for change
- Delineate customer needs
- Understand competitive strategies
- Forecast technological capability

Technology Forecasting



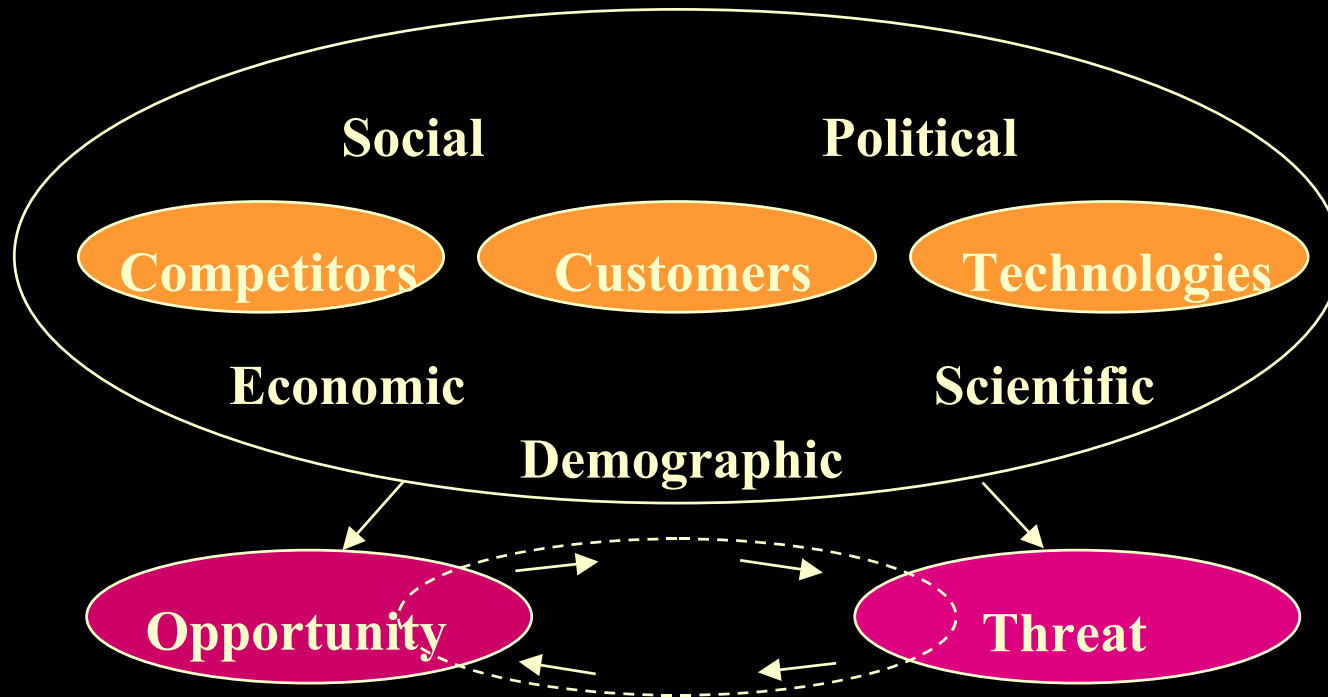
- Surveillance
 - Scanning
 - Monitoring
 - Tracking
- Trend Analysis
 - Precursor developments
 - Trend extrapolation
 - Pearle curve
 - Learning curve
 - Substitution analysis
- Expert Opinion
 - Interviews
 - Survey
 - Group techniques
- Integrative
 - Scenarios
 - Cross impact
 - Mathematical models

Guidelines for Thriving

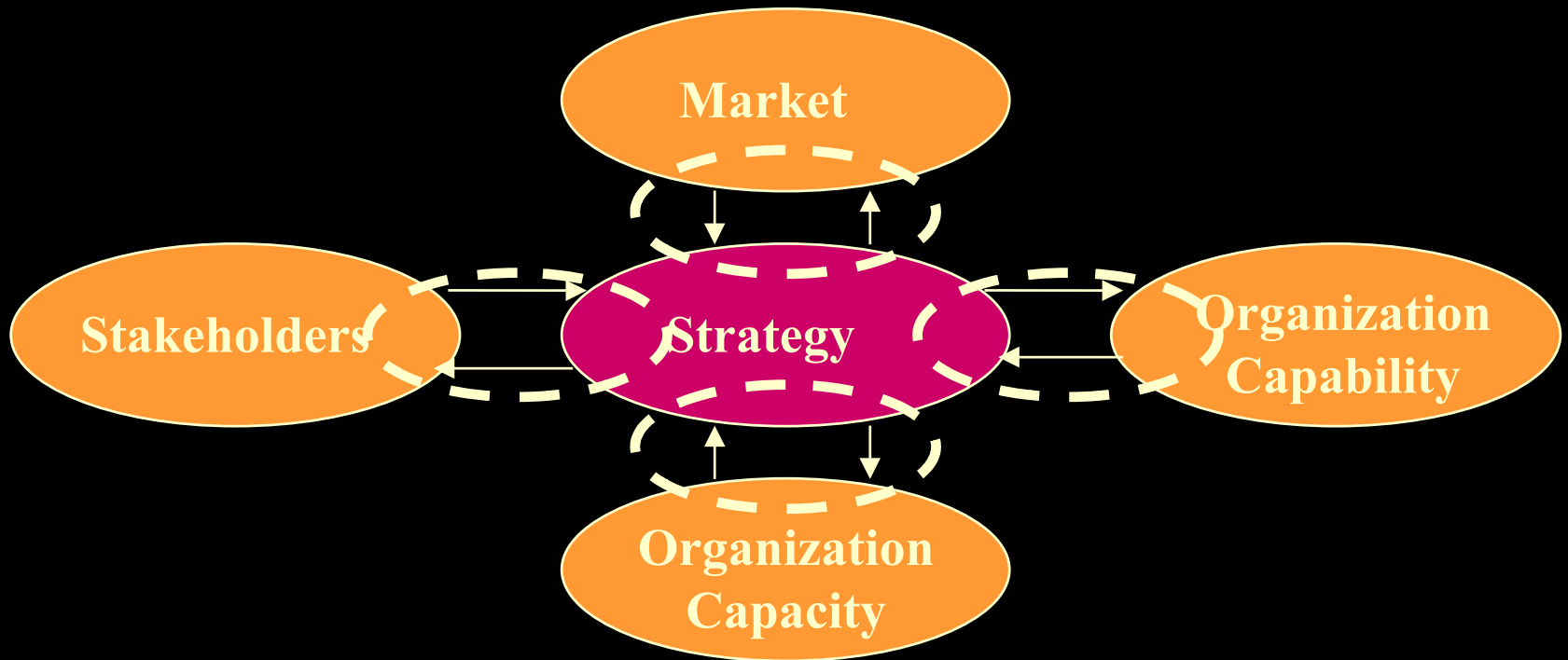


- Gain a broader perspective
- Look for what's changing
- Find the squeak of the pigs
- Focus on the space between
- Search for synergy
- Expect beauty
- Exploit the potential of information technologies

Market Opportunity & Threat



The Glocal Vantage

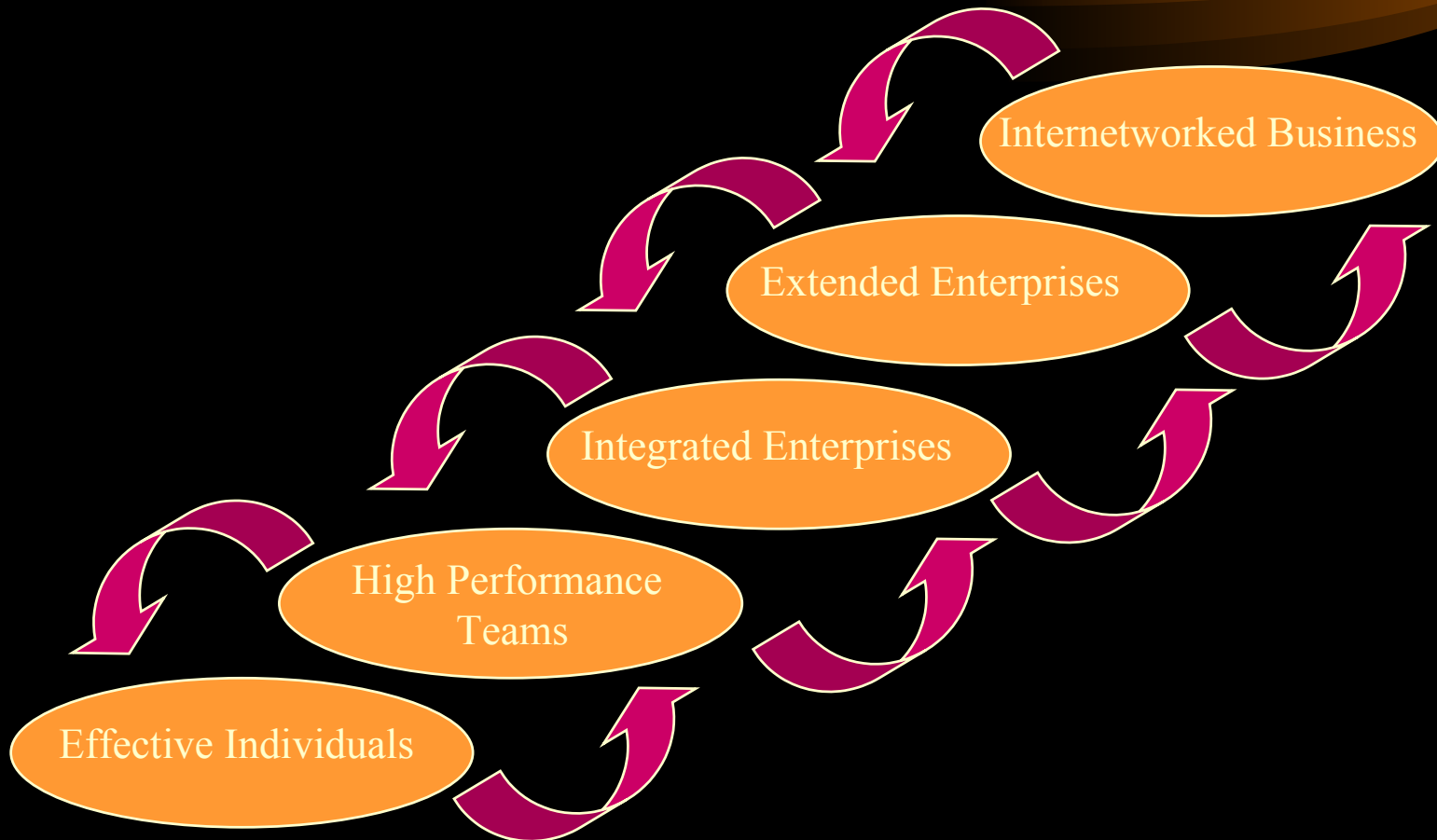


Electronic Commerce

<i>Type of Transaction</i>	<i>Percent</i>
<i>Consumer</i>	11% to 20%
<i>Business to Business</i>	80% to 89%

- Broad market penetration
- Lower transaction costs
- Enhanced customer service
- Tighter supply chain

Potential of Information Technologies



Industry Transformation



<i>Region</i>	<i>Percent</i>
<i>Global</i>	80%
<i>Europe & Asia</i>	28%
<i>North America</i>	16%

Executives who think
that electronic commerce
will completely transform
their industry

Glocal Vantage, Inc.



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